Endometriosis Related Ovarian Neoplasms (ERONs)

- ERONs include three neoplastic diseases frequently associated with ovarian endometrioma.
- Characterized by shared and unique molecular alterations. Several are actionable.
- Mutation in *ARID1A* tumor suppressor is common. Required PI3K/PTEN alterations.
- Understanding their pathogenesis helps outcome prediction and development of better therapy.

Why is important to study ERON?

- Many have well-known precursor stages (endometriosis) which is prevalent in women
- Patients are relatively younger
- Not as well studied as in HGSC
- OCCC is resistant to carbo/taxol
- Actionable genes and pathways (?)

Ovarian Clear Cell Carcinoma

- Half of cases are stage I
- Adv. stage tumors are refractory to platinum-based therapy
- Always ER negative
- Role of irradiation therapy
- Expression of HNF1-β & Napsin A & α-methylacyl-coenzyme A racemase (AMACR, P504S)

Endometrioid Carcinoma

- Most are stage I
- Always ER positive and low-grade
- Morphologically & molecularly similar to uterine endometrioid CA
- Not unusually to have synchronous uterine endometrioid CA

Seromucinous carcinoma

- Uncommon ovarian cancer
- Arise from seromucinous borderline tumor
- Mixed epithelial types
- Inflammatory microenvironment

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Questions to be addressed:

- Molecular landscape of endometriosis.
- Molecular decisions in developing CCC vs. EMC.
- Ovarian microenvironment and ERON pathogenesis.
- The translational roles of *ARID1A* mutations.
- Identifying endometriomas with increased risk.
- Clinical studies to demonstrate the efficacy of targeted therapy.
- Immune checkpoint inhibitors in ERONs with MMR deficiency.